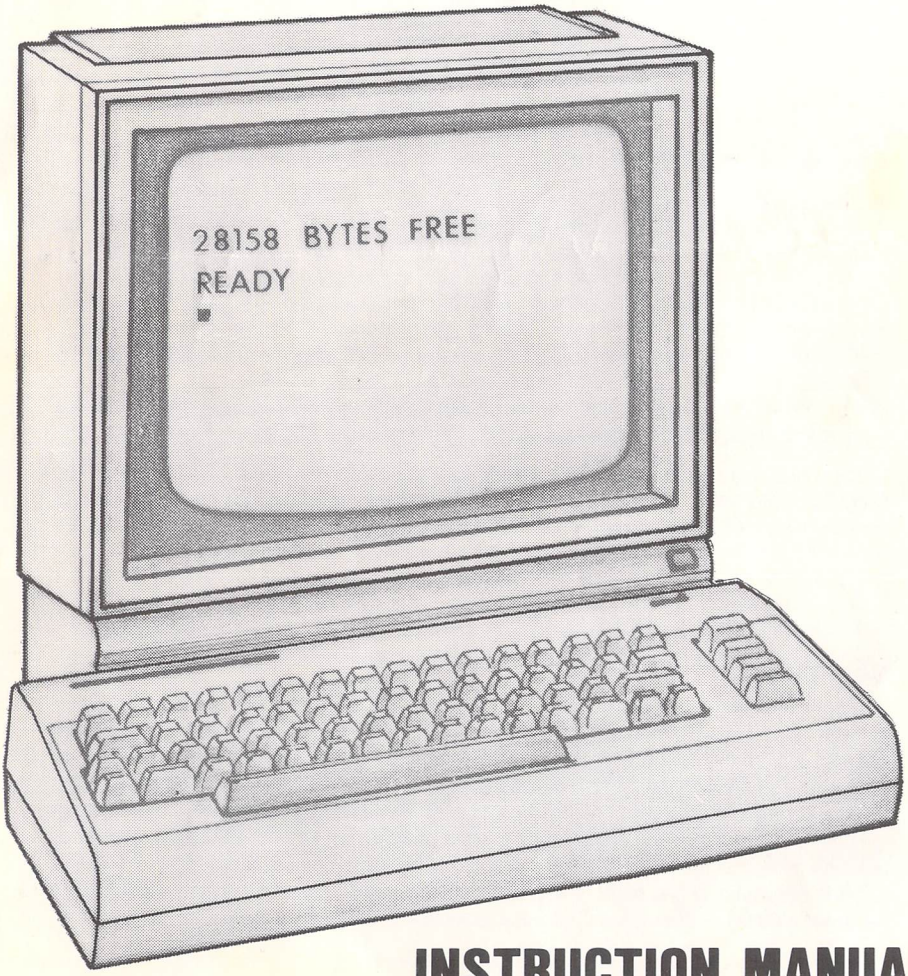
Xetec

32K RAM CARD

VIC 20® 32K MEMORY EXPANDER



INSTRUCTION MANUAL

32K RAM CARD — VIC 20® 32K Memory Expander

Description

The Xetec 32K Ram Card is a memory expansion cartridge specifically designed for the Commodore VIC-20. It contains 32K bytes (or 32 x 1,024 = 32,768 8-bit memory locations) of dynamic read/write memory (similar to the type used by the Commodore 64) along with the support circuitry necessary to insure proper operation of the dynamic memory (transparent refreshing, decoding, etc). It can increase the VIC's 5,120 bytes of memory (excluding color RAM) to 37,888 bytes in increments of 8,192 bytes by filling all of the four available expansion memory 8K blocks. Any combination of these blocks can be enabled or disabled by simply setting a small switch on the front of the cartridge. The 32K Ram Card is constructed of quality grade components and is fully tested and burned in at our factory.

Check-out and Installation

1. Turn VIC-20 off.
2. Set all BLOCK SELECT switches on front of 32K Ram Card to their ON position except number 5 (1, 2, 3 ON — 5 OFF).
3. Plug Ram Card directly into Memory Expansion slot in rear of VIC-20. If anything else is plugged in, remove for initial checkout.
4. Turn on VIC-20.
5. Observe display. Basic sign-on should include the following message: **28159 BYTES FREE**
6. Turn off VIC-20 and configure 32K Ram Card as required. Reconnect external devices to Memory Expansion slot as desired.

NOTE: Always turn off power before installing or removing Ram Card. Always insert 32K Ram Card into Memory Expansion slot with label facing up (if using a typical expansion chassis, label should face you).

Configuration

In order to properly use the 32K Ram Card with your VIC-20, you must configure it for your system. This involves setting the BLOCK SELECT switches on the Ram Card circuit board, accessible from the front of the cartridge, according to the amount of memory required to be active at any given time. Simply decide which 8K block(s) you want to be active and turn its (their) corresponding switch(es) to the ON position, leaving any remaining switch(es) in the OFF position. You need not turn power off to change a BLOCK SELECT switch setting, but remember that the VIC-20 only looks to see how much memory is active when you first turn the computer on (or reset, if you have a reset switch). See the Switch Block-Select Table for a listing of the memory address associated with each switch.

Switch Block-Select Table

Switch	Selects:	Address Hex	Address Decimal	Sign-on
1	8K RAM/ROM block 1	2000-3FFF	8192-16383	11775
2	8K RAM/ROM block 2	4000-5FFF	16384-24575	19967
3	8K RAM/ROM block 3	6000-7FFF	24576-32767	28159
5	8K ROM block 5	A000-BFFF	40960-49151	-----

Application Notes

1. Only activate or turn ON the block(s) you actually need for a particular application. Otherwise, a memory conflict may result, with unpredictable results. For instance, a popular word processor cartridge, Quick Brown Fox (a proprietary product of QUICK BROWN FOX, 548 Broadway, Suite 4-F, New York, NY 10012), occupies block 3. You *must* have the block 3 switch turned OFF for this program to function. If a program calls for 8K of expansion RAM, as another example, switch 1 should be ON and switches 2, 3 and 5 OFF.

2. If you are using the 32K Ram Card to expand memory for your BASIC programs, turn ON switch 1 for an additional 8K, switches 1 and 2 for 16K, and switches 1, 2 & 3 for an additional 24K, of memory. In such cases the BASIC sign-on message will reflect the added program space as shown in the above table (under Sign-on). Turning on block 5 will not add additional memory for BASIC except as noted below. Remember that you must reset or turn off and back on the VIC-20 if you change switch settings for BASIC to recognize the change.

3. For some applications (e.g., data storage, assembly language subroutines) you may wish to have some additional memory that will not be disturbed by BASIC programs. In such cases you need only configure the BLOCK SELECT switches so that there is an unused (OFF) block between active memory and another block. For example, you could turn blocks 1 & 3 ON and block 2 OFF. BASIC won't put anything in bank 3 (addresses 24576-32767) unless you tell it to (e.g., you POKE or PEEK). And, of course, you can put assembly language routines in block 3 also. Block 2, in this example, is not active and could not be used at all.

4. You can make use of the 8K RAM block which is normally reserved for ROM expansion (block 5, addresses 40960-49151). It will not be accessible for BASIC program storage but you can PEEK and POKE into it, use it with assembly language programs or use it to simulate ROM cartridges with proper programming. Note, however, that if you turn on block 5, you cannot use it at the same time you use a ROM cartridge or anything else that occupies block 5. Use of block 5 is only recommended for advanced programmers.

HAPPY COMPUTING!

A PERSONAL WORD

Thank you for purchasing one of our products. We at Xetec have made every effort to deliver to you a quality product that will be a real asset to your computing. You are a real asset to us, too. Please do not hesitate to contact us with your questions or suggestions, either at the address below or by calling us at (913) 827-0685 during normal business hours (we are on Central time).

NOTICE OF LIMITED WARRANTY

Xetec, Inc. warrants this product against defects in material and/or workmanship for a period of five years from the date of purchase and will, during this warranty period, repair or replace any defective components, or, at our option, the entire product, at no charge, provided that the product is returned shipping prepaid with proof of original puchase to:

Xetec, Inc.
3010 Arnold Rd.
Salina, Ks. 67401

This warranty does not apply if, in Xetec's opinion, the product has been damaged by accident, misapplication, misuse, or as a result of service, modification, or adjustment, by other than the manufacturer, Xetec, Inc. No other warranties are expressed or implied, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Xetec, Inc. is not responsible for consequential damages of any kind arising from or connected with the use of this product.

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